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EXAMINER

RODRIGUEZ, GLENDA P

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2651

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/993,869	Applicant(s) OZDEMIR, HAKAN	
	Examiner Glenda P. Rodriguez	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-22 and 29 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-17, 19, 23-28 and 30-35 is/are rejected.
- 7) ☒ Claim(s) 8 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5-31-05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 6, 7, 23, 30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Tuttle et al. (US Patent 6, 108, 151).

Regarding Claim 1, Tuttle et al. teach a servo circuit, comprising:

A servo channel operable to recover servo data from servo wedges that identify respective data sectors on a data-storage disk (Tuttle et al. teaches a read channel that detect servo data, therefore the channel is a servo/data channel.); and

A processor coupled to the servo channel and operable to detect a first spin-up wedge associated with a first one of the servo wedges and then to detect the first servo wedge while the disk is attaining or after the disk attains an operating speed and before the servo channel recovers servo data from any other servo wedge (Col. 4, L. 29-56 and Col. 15, L. 15-63, wherein Tuttle et al. teaches detecting an asynchronous servo wedge during the spin up operation. It is known in the art that the servo contains data that pertains to the location of the head with respect to the disk. Tuttle further teaches that when the disk attains its operating speed, it detects the wedges synchronously. Tuttle further teaches a servo controller as shown in Fig. 14, Element E162, wherein it detects the servo data.).

Apparatus claim (23) is drawn to the apparatus corresponding to the method of using same as claimed in claim (1). Therefore apparatus claim (23) corresponds to claims (1), and is rejected for the same reasons of anticipation as used above.

Regarding Claim 30, Tuttle et al. teaches a method wherein:

Rotating a data-storage disk having a surface from a first rotational speed to a second rotational speed over a first time period, the circumferential position of a read head relative to a location of the disk surface being unknown for at least a portion of the first time period (Col. 4, Lines 29-56 and Col. 15, L. 15-63, wherein Tuttle et al. teaches a start up operation, which inherently starts from a first operating speed, to a second speed which eventually is the disk operating speed.);

During or after the first time period and while the circumferential position of the read head is unknown, detecting spin-up data, and after detecting the spin-up data, detecting servo data that identifies a sector of the data-storage disk (Col. 15, L. 15-63, wherein Tuttle et al. teaches detecting an asynchronous servo wedge during the spin up operation. It is known in the art that the servo contains data that pertains to the location of the head with respect to the disk. Tuttle further teaches that when the disk attains its operating speed, it detects the wedges synchronously.); and

Determining the circumferential position of the read head from the detected servo data (Col. 15, L. 23-30, wherein Tuttle et al. also teaches that once it starts

detecting synchronously, it can determine its circumferential position within the disk.).

Regarding Claim 2, Tuttle et al. teach all the limitations of Claims 1. Tuttle et al. further teach wherein the processor is operable to cause the servo channel to recover servo data from the first servo wedge after the processor detects the one servo wedge and before the servo channel recovers servo data from any other servo wedge (Pat. No. 6, 108, 151; Col. 4, Lines 29-56 and Col. 15, L. 15-63).

Regarding Claim 4, Tuttle et al. teach all the limitations of Claim 1. Tuttle further teach the first servo wedge comprises a preamble and the processor is operable to detect the one servo wedge by detecting the preamble (Pat. No. 6, 108, 151; Fig. 2B and Col. 4, Lines 29-56 and Col. 15, L. 15-63).

Regarding Claim 6, Tuttle et al. teach all the limitations of Claim 1. Tuttle further teach the first servo wedge comprises a preamble and a servo synchronization mark following the preamble; the processor is operable to detect the first servo wedge by detecting the preamble; and the servo channel is operable to recover the synchronization mark in response to the processor detecting the preamble (Pat. No. 6, 108, 151; Fig. 2B and Col. 4, Lines 29-56 and Col. 15, L. 15-63 and Also see Col. 15, L. 64 to Col. 17, L. 60).

Regarding Claim 7, Tuttle et al. teach all the limitations of Claim 1. Tuttle et al. further teach the first servo wedge and a second servo wedge following the first servo wedge each comprise a preamble and a servo synchronization mark following the preamble; the processor is operable to detect the one servo wedge by detecting the preamble of the one servo wedge; the servo channel is operable to recover the synchronization mark of the first servo wedge in

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response to the processor detecting the preamble of the first servo wedge; after detecting the first servo wedge, the processor is operable to detect the second servo wedge by detecting the preamble of the second servo wedge; and the servo channel is operable to recover the synchronization mark of the second servo wedge in response to the processor detecting the preamble of the second servo wedge (Pat. No. 6, 108, 151; Fig. 2B and Col. 4, Lines 29-56 and Col. 15, L. 15-63 and Also see Col. 15, L. 64 to Col. 17, L. 60. It is known to a person of ordinary skill in the art to know that the servo channel during will read more than one servo wedge when the disk is in a spinning operation.).

Regarding Claim 31, Tuttle et al. teach all the limitations of Claim 30. Tuttle et al. further teach wherein the second rotational speed is a steady-state speed or is approximately a steady-state speed (Pat. No. 6, 108, 151; Col. 15, Lines 13-15. It is known to a person of ordinary skill in the art to know that in a disk after performing a spin-up operation, it eventually detects synchronously at a stable speed).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 5, 9, 10-17, 24-28 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al. in view of Leis et al. (US Patent No. 5, 036, 408).

Regarding Claim 3, Tuttle et al. teach all the limitations of Claim 1. Sacks et al. and Tuttle et al. do not explicitly teach wherein the first spin-up wedge comprises a zero-frequency field and the processor is operable to detect the first spin-up wedge by detecting the zero-frequency field. However, Leis et al. teaches a DC field placed in a sector (Pat. No. 5, 036, 408; See Abstract. It is known in the art that a dc or direct current signal has no frequency). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Tuttle et al.'s invention in order to control the position and synchronize the read/write head (Pat. No. 5, 036, 408; See Abstract).

Regarding Claim 5, Tuttle et al. teach all the limitations of Claim 1. Tuttle et al. does not explicitly teach the first spin-up wedge comprises a zero-frequency field; the first servo wedge comprises a preamble that follows and that is contiguous with the zero-frequency field; and the processor is operable to detects the first spin-up wedge by detecting the zero-frequency field and is operable to detect the first servo wedge by detecting the preamble after detecting the zero-frequency field. However, Leis et al. teaches teach the first spin-up wedge comprises a zero-frequency field (Pat. No. 5, 036, 408, See Abstract); the first servo wedge comprises a preamble that follows and that is contiguous with the zero-frequency field (Pat. No. 5, 036, 408, See Abstract); and the processor is operable to detects the first spin-up wedge by detecting the zero-frequency field and is operable to detect the first servo wedge by detecting the preamble after detecting the zero-frequency field (Pat. No. 5, 036, 408, See Abstract and Fig. 3A, Step 108).

Regarding Claims 9 and 10, Sacks et al. and Tuttle et al. teach all the limitations of Claim 1. Tuttle et al. does not explicitly teach the first spin-up wedge comprises a zero-frequency field; the servo channel is operable to generate a zero-frequency or approximately zero-frequency read

signal that represents the zero-frequency field and to sample the read signal; and the processor is operable to, compare samples of the read signal to a threshold, and detect the first spin-up wedge if a predetermined number of consecutive samples each have a predetermined relationship to the threshold. However, Leis et al., teaches teach the first spin-up wedge comprises a zero-frequency field (Pat. No. 5, 036, 408, See Abstract); the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal (Pat. No. 5, 036, 408, See Abstract and Col. 3, Lines 55-57, which indicates data is being sampled. Leis et al. teach a servo control system used for positioning the head. It is obvious to a person of ordinary skill in the art that servo channels are used for that same purpose.) and the processor is operable to, compare samples of the read signal to a threshold, and search and detect the first spin-up wedge if a predetermined number of consecutive samples each have a predetermined relationship to the threshold (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Fig. 3A, Step 104).

Regarding Claim 11, Tuttle et al. teach all the limitations of Claims 1. Tuttle et al. does not explicitly teach wherein the first spin-up wedge is disposed within the first servo wedge. However, Leis et al. teaches wherein the first spin-up wedge is disposed within the first servo wedge (Pat. 5, 036, 408; Abstract).

Regarding Claims 12, 13, 14, 15, 16, 32, 33 and 34, Tuttle et al. teach all the limitations of Claims 1 and 30, respectively. Tuttle et al. does not explicitly teach the first spin-up wedge comprises a zero-frequency field; the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and the processor is operable to, compare samples of the read signal to a

threshold, and detect the first spin-up wedge if a predetermined number of consecutive samples each have a predetermined relationship to the threshold. However, Leis et al. teaches teach the first spin-up wedge comprises a zero-frequency field (Pat. No. 5, 036, 408, See Abstract); the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal (Pat. No. 5, 036, 408, See Abstract and Col. 3, Lines 55-57, which indicates data is being sampled. Leis et al. teach a servo control system used for positioning the head. It is obvious to a person of ordinary skill in the art that servo channels are used for that same purpose.) and the processor is operable to, compare samples of the read signal to a threshold, and search and detect the preamble if a predetermined number of consecutive samples each have a predetermined relationship to the threshold (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Fig. 3A, Step 108).

Regarding Claim 17, Tuttle et al. teach all the limitations of Claim 1. Tuttle et al. does not explicitly teach the first spin-up wedge comprises a zero-frequency field; the first servo wedge comprises a preamble; the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and the processor is operable to, compare samples of the read signal to a threshold, search for the preamble of the first servo wedge in response to a first predetermined number of consecutive samples that have a predetermined relationship to the threshold, and abort the search for the preamble of the first servo wedge if the processor does not detect the preamble within a second predetermined number of consecutive samples that immediately follow the first predetermined number of consecutive samples. However, Leis et al. teach the first spin-up wedge comprises a zero-frequency field (Pat. No. 5, 036, 408, See Abstract); the first servo

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wedge comprises a preamble (Pat. No. 5, 036, 408, See Abstract); the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal (Pat. No. 5, 036, 408, See Abstract and Col. 3, Lines 55-57, which indicates data is being sampled. Leis et al. teach a servo control system used for positioning the head. It is obvious to a person of ordinary skill in the art that servo channels are used for that same purpose.); and the processor is operable to, compare samples of the read signal to a threshold, search for the preamble of the first servo wedge in response to a first predetermined number of consecutive samples that have a predetermined relationship to the threshold, and abort the search for the preamble of the first servo wedge if the processor does not detect the preamble within a second predetermined number of consecutive samples that immediately follow the first predetermined number of consecutive samples (Pat. No. 5, 036, 408, Fig. 3A and Col. 7, Lines 1-50 and Fig. 3A).

Regarding Claim 24, Tuttle et al. teach all the limitations of Claim 23. Tuttle et al. does not explicitly teach wherein the servo channel is operable to recover the servo data from the detected servo wedge; and the servo circuit is operable to, determine an initial position of the read head from the recovered servo data, and provide the initial position to the read-head positioning circuit. However, Leis et al. teaches the servo channel is operable to recover the servo data from the detected servo wedge (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Abstract); and the servo circuit is operable to, determine an initial position of the read head from the recovered servo data, and provide the initial position to the read-head positioning circuit (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Abstract).

Regarding Claim 25, Tuttle et al. teach all the limitations of Claim 23. Tuttle does not explicitly teach wherein the servo channel is operable to recover the servo data from the detected servo wedge and to provide the location of the respective data sector to the read-head positioning circuit. However, Leis et al. teaches wherein the servo channel is operable to recover the servo data from the detected servo wedge and to provide the location of the respective data sector to the read-head positioning circuit (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Abstract. Leis et al. teach a servo control system used for positioning the head. It is obvious to a person of ordinary skill in the art that servo channels are used for that same purpose.).

Regarding Claim 26, Tuttle et al. teach all the limitations of Claim 23. Tuttle does not explicitly teach the servo channel is operable to recover the servo data from the detected servo wedge and to provide the location of the respective data sector to the read-head positioning circuit; and the read-head positioning circuit is operable to determine an initial position of the read head from the location of the respective data sector. However, this feature is well known in the art as disclosed by Leis et al., wherein it teaches the servo channel is operable to recover the servo data from the detected servo wedge and to provide the location of the respective data sector to the read-head positioning circuit (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Abstract); and the read-head positioning circuit is operable to determine an initial position of the read head from the location of the respective data sector (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Abstract).

Regarding Claim 27, Tuttle et al. teach all the limitations of Claim 23. Tuttle does not explicitly teach wherein the read-head position circuit and the servo circuit are unable to

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determine the position of the read head before the processor detects the one servo wedge. However, Leis et al. teaches the read-head position circuit and the servo circuit are unable to determine the position of the read head before the processor detects the one servo wedge (Pat. No. 5, 036, 408; See Abstract).

Regarding Claim 28, Tuttle et al. teach all the limitations of Claim 23. Tuttle does not explicitly teach wherein the read head comprises a read-write head. However, Leis et al. teaches wherein the read head comprises a read-write head (Pat. No. 5, 036, 408; See Abstract).

Regarding Claim 35, Tuttle et al. teach all the limitations of Claim 1. Tuttle does not explicitly teach wherein detecting the spin-up data and servo data comprises accurately detecting a predetermined number of spin-up wedges and servo wedges before determining the circumferential position of the read head. However, Leis et al. teaches detecting DC erase fields, followed by the preamble in order to search for the position on the head (Pat. No. 5, 036, 408; Col. 7, Lines 1-50 and Abstract).

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al. in view of Patapoutian et al. (US Patent No. 5, 661, 760). Tuttle et al. teach all the limitations of Claim 1. Sacks et al. and Tuttle et al. fail to teach wherein the servo wedge comprises a predetermined binary sequence having groups of no more and no fewer than a predetermined number of consecutive bits each having a first logic level, the groups separated from each other by respective bits having a second logic level; And the servo channel comprises a Viterbi detector that excludes state transitions that are excluded from the predetermined binary sequence. However, Patapoutian et al. teaches a first group of consecutive bits, the first group having first and second equally sized portions and representing a first logic level, the bits in the first portion

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each having a second logic level (Pat. No. 5, 661, 760; Col. 3, Lines 55-58. Patapoutian et al. teaches a $\frac{1}{4}$ coding scheme that codes binary ones into "--++" and binary zeros into "++--". It is inherent that if a sequence of for example "1011" ("10" being a first logic level and "11" being a second logic level) will be encoded into "--++++----++--++", having a first and second equally sized portion in the first group ("--++" and "++--") having a second logic level ("1") and a third logic level ("0")) and a Viterbi detector operable to receive a signal that represents a binary sequence (Pat. No. 5, 661, 760; See Abstract). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Tuttle et al.'s invention in order to receive a binary sequence (Pat. No. 5, 661, 760; See Abstract).

Allowable Subject Matter

6. Claims 8 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 20-22 and 29 are allowed.

The following is an examiner's statement of reasons for allowance: the primary reason for allowance is the inclusion of the limitation wherein processor operable to detect first and second portions of one of the servo wedges.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments


8. Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (571) 272-7561. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


gpr
August 18, 2005.


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